



Job Loss Analysis

ID No: 2000219 **Status:** Closed

Original Date: 4/27/11
Last Review Date: 7/6/11

Organization:

SBU: GLOBAL MAUFACTURING
BU: ALL
Work Type: Technical (Process Engineering)
Title (Work Activity): Creating a Refrac Case
Site/Region:

Personal Protective Equipment (PPE)	Selected	Comments
Additional Task Specific PPE		
Other		

Reviewers

Reviewers Name	Position	Date Approved
Michelle Johansen	Process Engineering Manager /Global JLA Development Team Leader	7/6/11

Development Team

Development Team Member Name	Primary Contact	Position
Garth Jolly		Senior Process Engineer
Steph Watson		Process Engineer

Job Steps

No	Job Steps	Potential Hazard	Critical Actions
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1	Setup a new ReFrac case in draw mode.	<p>1. Failure to validate drawing will prevent user from moving on to reconcile and build assay mode.</p>	<p>1a. Use drawing tools in Draw mode to create the flowsheet.</p> <p>1b. Validate the drawing using the Validate function under the Actions menu and make changes as needed for connectivity.</p> <p>1c. Review the functional drawing under the Split Seq tab. Print functional drawing for reference.</p> <p>1c. Select data source for each stream under the Stream Type tab by double clicking until the appropriate choice is displayed. Note that a "Both" stream is required between "GC Only" and "Boiling Curve Only" streams.</p>
2	Collect process data.	<p>1. Failure to determine the condition you are modeling will result in ineffective troubleshooting.</p> <p>2. Failure to collect data from a single day will result in refrac making more assumptions and provide less accurate output.</p> <p>3. Failure to create a template for process and lab data can result in inefficient use of time to hand enter all data.</p> <p>4. Failure to collect data consistent with column operation will result in an inaccurate model.</p>	<p>1. Determine if you want to model normal or upset conditions, and get data that represent those conditions.</p> <p>2. Collect data from a single day if possible.</p> <p>3. Create an Excel template for process data and lab results to copy and paste to Reconcile mode Balances tab. Consider adding template or a Refrac Case Manager to PMO.</p> <p>4a. Collect feed and product flow rates to column.</p> <p>4b. Collect column temperature and pressures. ReFrac requires temperatures and pressures for all streams, although they are not used in the calculations.</p> <p>4c. Collect feed and product D2887 and gravity sample data from same day.</p>

3	Enter process data in Reconcile mode, and use this mode to estimate reasonable values for missing or bad data.	<ol style="list-style-type: none"> 1. Failure to enter process data will result in inability for ReFrac to complete calculations. 2. Choosing inappropriate floating variables will result in ReFrac making bad curve fit and distribution of properties. 3. Failure to calculate results will prevent the user from moving to the Build Assay and Predict modes. 4. Failure to identify bad data could result in inaccurate results 	<ol style="list-style-type: none"> 1. Use the Reconcile mode to enter the boiling point curves, gravities, flow rates, temperatures, and pressures. If feed files are available, load feed files into the Reference Feed sheet. Crude assays (Reference Feeds) or previously constructed feed files (Native Feeds) can be used. 2. Adjust the fixed and floating variables in the Balances tab. If you are missing data for a variable, consider setting it as your floating variable. 3. Calculate results using the Calc button under the Actions menu. 4. Use the Plots tab to view the data entered in graphical form. The Cumulative Boiling Point curve or Probability View plot can help identify bad data.
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4	Use the Build Assay Mode to distribute the feed properties across the entire product boiling range or to reproduce feed from product properties.	<ol style="list-style-type: none"> 1. Failure to fit API will result in inability to fit all other properties. 2. Failure to input and fit properties will result in inability to reconstruct feed or distribute feed properties 	<ol style="list-style-type: none"> 1. Fit API before fitting other properties. 2a. Choose the properties that you would like to fit from the Actions menu in Build Assay Mode or from the tabs at the top. 2b. Determine fit method. The Help menu can be used to determine the best fit method. If you choose "Fit Input", you must specify the property value for each cut. If you choose "Reference Feed", you will need a feed file or assay. 2c. Choose a tolerance if using "Fit Input Property." 2d. Enter product qualities in the Fit Props tab. 2e. Determine if you want to reconstruct a feed assay from product qualities and save for later use. If saving as a feed file, use the saved feed file option under the Actions menu. The Measured Feed option should be selected since this is a reconstructed feed file.
5	Predict distillation product yields and physical properties using the "What-If Case" Sections in Predict Mode. Compare "What-If" results to the Base Case.	<ol style="list-style-type: none"> 1. Failure to make changes to the "What If" case will prevent you from predicting the consequences of feed, cut point, and separation quality changes. 2. Failure to use the product blend function will result in the inability to predict the blended properties of streams that combine outside of the column to make one product. 	<ol style="list-style-type: none"> 1a. Adjust feed under the Feed Tab to determine the effect of various feed combinations. 1b. Adjust cut point temperatures under the Action menu Change values to the "What If" case and compare to the Base case. 1c. Adjust rectifying and stripping indices under the Sep Qual tab to determine the effect on product properties. Change values in the "What If" case and compare to the Base case. 2. Create product blends or combine streams in the Product Blend tab.